


<b>AWARD/CONTRACT</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING		PAGE OF PAGES 1   2	
2. CONTRACT (Proc. Inst. Ident.) NO. EP-C-17-031/68HERC20F0213				3. EFFECTIVE DATE See Block 20C		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. PR-R3-20-00110	
5. ISSUED BY CODE		CAD		6. ADMINISTERED BY (If other than Item 5) CODE			
CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001							
7. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State and ZIP Code)  TETRA TECH, INC. Attn: John Hochheimer 10306 EATON PL STE 340 FAIRFAX VA 22030				8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)			
				9. DISCOUNT FOR PROMPT PAYMENT			
				10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN			
CODE 198549560		FACILITY CODE					
11. SHIP TO/MARK FOR CODE		REGION 3		12. PAYMENT WILL BE MADE BY CODE		RTP FMC	
Region 3 US Environmental Protection Agency 1650 Arch St. Philadelphia PA 19103-2029				RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711			
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304 (c) ( ) <input checked="" type="checkbox"/> 41 U.S.C. 3304 (a) ( )				14. ACCOUNTING AND APPROPRIATION DATA See Schedule			
15A. ITEM NO	15B. SUPPLIES/SERVICES			15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	Continued						
15G. TOTAL AMOUNT OF CONTRACT						\$175,446.21	
<b>16. TABLE OF CONTENTS</b>							
(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
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	B	SUPPLIES OR SERVICES AND PRICES/COSTS		PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.			
	C	DESCRIPTION/SPECS./WORK STATEMENT			J	LIST OF ATTACHMENTS	
	D	PACKAGING AND MARKING		PART IV - REPRESENTATIONS AND INSTRUCTIONS			
	E	INSPECTION AND ACCEPTANCE			K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
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<b>CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE</b>							
17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 0 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number 68HERC20R0058, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)			
19A. NAME AND TITLE OF SIGNER (Type or print)				20A. NAME OF CONTRACTING OFFICER Andrea Dehne			
19B. NAME OF CONTRACTOR		19C. DATE SIGNED		20B. UNITED STATES OF AMERICA		20C. DATE SIGNED	
BY  (Signature of person authorized to sign)				BY  (Signature of the Contracting Officer)		ELECTRONIC SIGNATURE 04/30/2020	

## CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED  
EP-C-17-031/68HERC20F0213PAGE OF  
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NAME OF OFFEROR OR CONTRACTOR

TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
0001	DUNS Number: 198549560 TOCOR: Patricia Gleason Accounting Info: 19-20-B-03LP0CB-000B63-2532-2003LA1006-001 BFY: 19 EFY: 20 Fund: B Budget Org: 03LP0CB Program (PRC): 000B63 Budget (BOC): 2532 DCN - Line ID: 2003LA1006-001 Period of Performance: 05/01/2020 to 04/29/2022  Firm Fixed Price Task Order  Base Period Task Order Issuance Line Item: Technical Support for EPA/ORD Ecological Assessment Programs  Delivery: 04/30/2021				175,446.21
0002	Option Period Task Order Issuance Line Item: Technical Support for EPA/ORD Ecological Assessment Programs (Option Line Item) 04/15/2021  Delivery: 04/29/2022  Delivery-Invoice Payment Schedule shall not exceed a frequency greater than once a month and 90% of the task order price. Acceptance for invoicing is based on deliverable approval by the TOCOR. For efficient processing IAW FAR clause 52.232-32, performance based payment invoicing amounts will not be submitted until the TOCOR provides deliverable approval. The TOCOR will notify Tetra Tech within 14 days of submission of a deliverable of EPAs intention to approve or disapprove. TOCOR: Patricia Gleason/(215)814-5740/gleason.patricia@epa.gov ALTOCOR: Lydia Bailey/(215)814-5339/bailey.lydia@epa.gov				46,754.00

## PERFORMANCE WORK STATEMENT

Tetra Tech, Inc.  
Contract #EP-C-17-031  
PR-R3-20-00110  
SOL#68HERC20R0058  
Task Order #68HERC20F0213

- A. TITLE:** Developing a Preliminary Conceptual Ecological Risk Assessment Model and Science Strategy for Microplastics in the Potomac River

<b>Task Order Contracting Officer Representative (TOCOR)</b>	<b>Alternate Task Order Contracting Officer Representative (ALTOCOR)</b>
<b>Name:</b> Patricia Gleason	<b>Name:</b> Lydia Bailey
<b>Office:</b> 215-814-5740	<b>Office:</b> 215-814-5339
<b>Address:</b> US EPA Region 3/Water Division 1650 Arch Street	<b>Address:</b> US EPA Region 3/Water Division 1650 Arch Street
Mail Code: 3WD41	Mail Code: 3WD00
Philadelphia, PA 19103-2029	Philadelphia, PA 19103-2029
<b>Email:</b> <a href="mailto:gleason.patricia@epa.gov">gleason.patricia@epa.gov</a>	<b>Email:</b> <a href="mailto:bailey.lydia@epa.gov">bailey.lydia@epa.gov</a>

**PERIOD OF PERFORMANCE:** This Task Order will include a 12-month Base Period and a 12-month Option Period

Base Period	12 Months
Option Period	12 Months

### B. PURPOSE OF TASK ORDER

The purpose of this task order is to develop a preliminary conceptual ecological risk assessment model and science strategy for microplastics in the Potomac River. This task order will help to inform restoration efforts in the Chesapeake Bay and watershed by helping to drive research on how microplastics affect restoration goals for fishery species such as American Shad and Striped Bass. The Potomac River is one of the largest tributaries to the Chesapeake Bay and will serve as an appropriate place to start to address the ecological impacts of microplastics on aquatic resources in the larger Chesapeake Bay ecosystem.

### C. BACKGROUND

Microplastics are an emerging contaminant of concern. Microplastics are generally defined as polymer particles less than 5 mm long. The potential human health and environmental impacts of plastic pollution is being studied globally. Its impacts on aquatic resources and the food chain could have lasting impacts. The Chesapeake Bay's Science and Technical Advisory Committee recognized this growing threat and hosted a two-day workshop in the Spring of 2019 called "Microplastics in the Chesapeake Bay and its Watershed: State of the Knowledge, Data Gaps, and Relationship to Management Goals". Over 50 participants from government, academia, consulting, and non-governmental organizations met to present current research and policy initiatives, followed by facilitated discussion on data gaps and needs.

The workshop was designed within the framework of an ecological risk assessment (ERA), treating microplastics in the environment similarly to other pollutants. Participants noted that while our understanding has progressed in recent years, there is still have little idea of the magnitude and distribution of microplastics within the watershed, much less the potential impact microplastic pollution may be having on living resources. Workshop participants concluded that microplastics pose a potential serious risk to successful restoration of the Chesapeake Bay watershed.

As a result, the following recommendations were presented to the Chesapeake Bay Program (CBP) as urgent and immediate needs:

1. The CBP should create a Plastic Pollution Action Team (PPAT) to address the growing threat of plastic pollution to the bay and watershed.
2. The Scientific, Technical Assessment and Reporting (STAR) Team should incorporate development of ERAs of microplastics into the CBP strategic science and research framework, and the PPAT should oversee the development of the ERAs focused on assessment of microplastic pollution on multiple living resource endpoints.
3. Science and Technical Advisory Committee (STAC) should undertake a technical review of terminology used in microplastic research, specifically size classification and concentration units, and recommend uniform terminology for the CBP partners to utilize in monitoring and studies focused on plastic pollution in the bay and watershed.
4. The CBP should develop a source reduction strategy to assess and address plastic pollution emanating from point sources, non-point sources, and human behavior.
5. The CBP should direct the PPAT and STAR Team to collaborate on utilizing the existing bay and watershed monitoring networks to monitor for microplastic pollution.

The Contractor, in partnership with stakeholders, shall formulate an ERA conceptual model looking at the effects of microplastics on various ecological endpoints (e.g. American Shad) in the Potomac River. This project will entail compiling the best available science to develop a preliminary ERA using the EPA framework (EPA 630/R-92/001). The deliverables for this project shall include a final report describing the data gathering process, the ecological risk assessment conceptual model, description of uniform scientific terminology, and science strategy.

#### **D. QUALITY ASSURANCE**

The tasks in this Task Order require the use of existing data and use of modeling tools for data analysis. The Contractor shall prepare a Quality Assurance Project Plan (QAPP). All QA activities shall be in conformance with this QAPP. Documentation of all analyses shall also indicate how types, quantity, and quality of data have been quality assured and maintained. In addition, the contractor shall ensure that metadata is compiled in an easy to use format. All products should be detailed so that the decisions and analysis are completely transparent to a third party. The Contractor shall alert the Task Order Contracting Officer Representative (TOCOR) regarding any quality issues should they arise. Any project specific quality assurance issues shall be reported in the progress reports as specified under Task 1.

#### **E. TASKS**

The contractor shall provide support for the below tasks. (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6, and 3., 4., and 5.). Written technical exchange shall be utilized, if necessary, to provide further detail on specific work included in the PWS, provide guidance, or approve or comment on deliverables. The TOCOR, the Alternate TOCOR (if the TOCOR is on leave or travel), and the Contracting Officer (CO) are the only individuals authorized to issue technical exchange. The contractor shall anticipate working with the TOCOR and staff leads from Region 3 Water Protection Division (WPD) to furnish the requested technical exchange.

#### **Task 1: Establish Communication and Prepare Project Deliverables (Contract PWS 2. Task Area 6 and 3.)**

##### ***SubTask 1.1 Communication/Kickoff Call***

The contractor shall participate by conference call in a Kickoff Meeting as determined by the TOCOR to discuss the following: points of contact, roles and responsibilities, timelines, the schedule of benchmarks, milestones and deliverables, establish dates and times for monthly calls, monthly technical progress reports, and general Task Order administrative information. The contractor shall provide meeting notes from these calls in the form of technical progress reports by email which shall include status updates of all of the tasks of this PWS.



***Subtask 1.2 Communication and Regular Reporting***

The TOCOR will coordinate and set-up monthly conference calls between EPA staff and the contractor's technical lead to discuss the status and progress of the work under this Task Order. The contractor shall participate in these monthly calls. The TOCOR may modify the frequency of conference calls based on project progress. From time to time, researchers from other federal agencies may be invited by the TOCOR to provide perspectives and information.

***Subtask 1.3 Coordination and Notification with TOCOR***

The contractor shall notify the TOCOR of any problems, delays or questions as soon as they arise, including immediate written notification of any Task Order delays.

***Subtask 1.4 Coordination and Notification Issues with External Parties***

This task requires coordination with other stakeholders and therefore it is particularly important that the Contractor shall notify the TOCOR of issues, problems, questions, or delays as soon as they become apparent or if they are anticipated. The use of webinar systems such as skype, adobe connect, and zoom are acceptable for use as communication tools under this task order.

***Subtask 1.5 Reporting and Meeting Minutes***

In general, written materials including meeting summaries shall be furnished by the contractor within five business days after conference call in draft form for the TOCOR to review; then a final written deliverable would be expected within five business days after receipt of written technical exchange from the TOCOR, including the TOCOR's comments and edits to the draft deliverable.

**Task 1 Deliverables**

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
1	1.1	Brief, written progress reports as email to the TOCOR	Due monthly or upon request by the TOCOR for the duration of this Task Order.
1	1.2	Project meetings and other communications, such as conference calls	Due monthly or upon request by the TOCOR for the duration of this Task Order.
1	1.3	Brief, written reports as emails to TOCOR detailing problems, delays or questions	Due immediately and as needed to TOCOR.
1	1.4	Brief, written reports as emails to TOCOR detailing problems, delays or questions working with stakeholders	Due immediately and as needed to TOCOR.
1	1.5	Meeting Notes and summaries detailing topics discussed and discussion among parties	Due within 5 business days of a meeting to TOCOR.

## **Task 2: Prepare and Implement QAPP (Contract PWS 5.)**

### ***Subtask 2.1 Draft QAPP***

The Contractor shall develop a Quality Assurance Project Plan (QAPP). The QAPP will need to be drafted and sent for review and approval by the TOCOR and the QA Manager. EPA requires a 45-day review period for QAPPs. The Contractor shall not proceed with tasks needing QA review until the TOCOR furnishes the Contractor, in writing, a notice that any additions to the QAPP have been accepted by EPA.

### ***Subtask 2.1 Final QAPP***

The Contractor shall develop a Final QAPP that incorporates any comments or concerns identified in EPA's Quality Assurance Memo.

### ***Subtask 2.3 QA Processes and Changes***

All QA activities shall be in conformance with EPA's *Requirements for Quality Assurance Project Plans* (EPA QA/R-5) "<https://www.epa.gov/quality/guidance-quality-assurance-project-plans-epa-qag-5>" and should demonstrate a clear understanding of the project's goals/objectives/questions and issues. Documentation of all analyses shall also indicate how types, quantity, and quality of data have been quality assured and maintained. All products should be detailed so that the decisions and analysis are completely transparent to a third party. The Contractor shall alert the TOCOR regarding any quality issues should they arise.

## **Task 2 Deliverables**

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
2	2.1	A Draft QAPP for EPA 45-day Review	Due within 4 weeks after receipt of EPA's final review.
2	2.2	A Final QAPP including EPA comments	Due within 2 weeks of EPA QA Memo
2	2.3	Documentation of all analyses that indicate how types, quantity, and quality of data have been quality assured and maintained.	Due within 11 months of task order award to TOCOR.

## **Task 3: Develop a Uniform Size Classification and Concentration Unit Terminology for Broad Application (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6 and 3., and 4.)**

EPA's Chesapeake Bay Program Management Board approved the formation of a Plastic Pollution Action Team (PPAT) to address the emerging and growing concerns of microplastics in the watershed. The Contractor shall work with the Chesapeake Bay Program Plastics Pollution Action Team, the Chesapeake Bay Program Science and Technical Advisory Committee (STAC) and other stakeholders to develop a uniform size classification and concentration unit terminology for microplastics. This terminology will be used for the development of the Ecological Risk Assessment Framework (Task 4).

### **Task 3 Deliverables**

Task	SubTask	Deliverable	Due
3	NA	A Uniform Size Classification and Concentration Unit Document reviewed and approved by the PPAT and STAC	Due within 6 months of task order award to TOCOR.

### **Task 4: Formulate a Preliminary Ecological Risk Assessment Model** (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6 and 3., and 4.)

The Contractor shall formulate a preliminary ecological risk assessment (ERA) model examining the effects of microplastics on one or more ecosystem endpoints (e.g. fish species) in the Potomac River. ERAs are a very effective way of visualizing and communicating potential ecological risks, especially risks associated with emerging contaminants. The Contractor shall follow EPA’s Ecological Risk Assessment Framework “Guidelines for Ecological Risk Assessment” (EPA/630/R-92-001) and as depicted in Figure 1.

The Contractor shall use the one or more endpoints, existing data collected in the Chesapeake Bay and its watershed, and relevant data from similar waterbodies to develop a preliminary conceptual model illustrating the ecological risk. The Contractor shall engage the PPAT for input on all the model components (see SubTasks 4.1 – 4.4). This model should describe pathways illustrating how human activities act as a source of the source of a stress (i.e. microplastics), the stressors (i.e. impacts to ecosystem health), and the assessment endpoint. Figure 2 provides an example ecological risk conceptual model taken from the 2019 Chesapeake Bay Program Scientific and Technical Advisory Committee report on Microplastics in the Chesapeake Bay and its watershed.

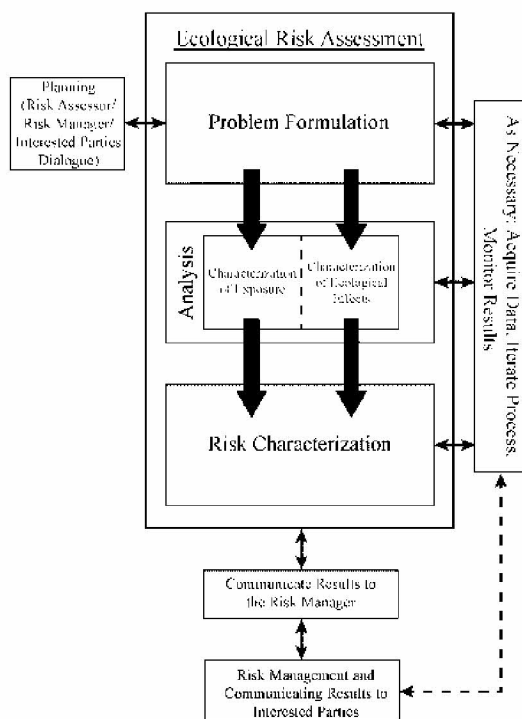


Figure 1: EPA’s Ecological Risk Assessment Framework (EPA/630/R-92/001)

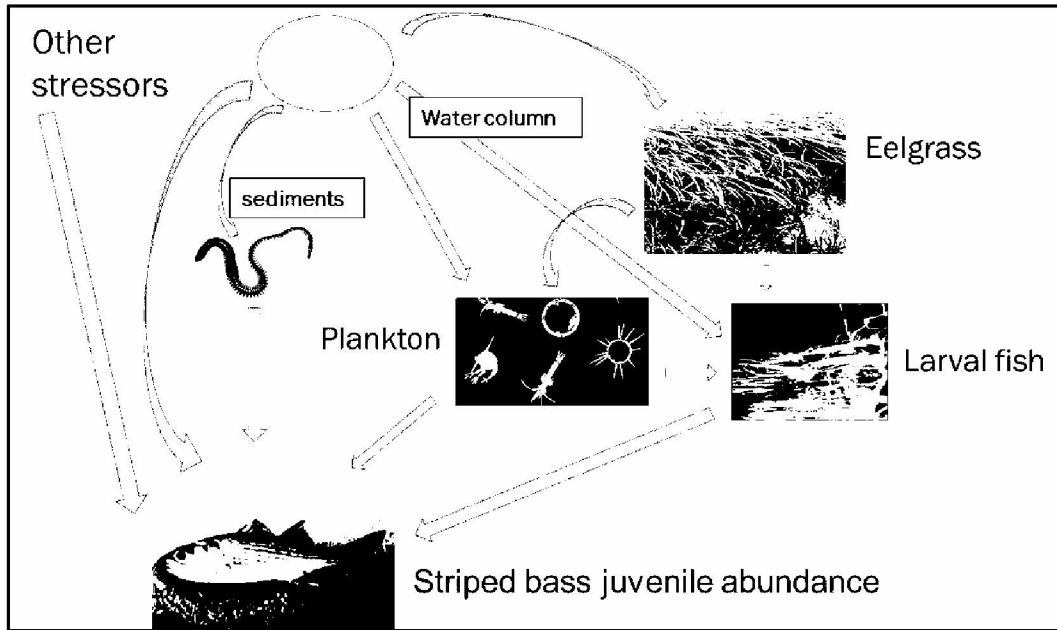


Figure 2 – Example ecological risk conceptual model (Murphy Et. al., 2019).

#### **SubTask 4.1: Planning and Problem Formulation**

This task refers to the first phase of ecological risk assessment and establishes the goals, breadth, and focus of the assessment. It is a systematic planning step that identifies the major factors to be considered.

##### ***SubTask 4.1.1 Communication with Stakeholders***

The Contractor shall schedule a meeting with the PPAT immediately after Kickoff Meeting to begin planning. The Contractor shall use the PPAT as a conduit to glean necessary input and preliminary data for the planning phase of the ERA. The Contractor shall gather information from the PPAT to ensure multi-stakeholder input.

##### ***SubTask 4.1.2 Draft Preliminary Conceptual ERA***

Using information collected from the PPAT and other sources, the Contractor shall be required to formulate a draft preliminary ERA conceptual model illustrating potential sources, pathways, and endpoints.

#### **SubTask 4.1 Deliverables**

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
4	4.1.1	A report out via email to the TOCOR detailing the process to plan and engage PPAT and other stakeholders for input.	Due 2 weeks after task order award to TOCOR.
4	4.1.2	A draft preliminary ERA Conceptual Model illustrating sources, pathways, and endpoints reviewed by the PPAT and submitted to TOCOR	Due 3 months after task order award to TOCOR.

**SubTask 4.2: Analysis: Identify testable linkages between sources, stressors and assessment endpoints.**

This task refers to the next phase in conducting the ERA which is designed to fill in information gaps concerning sources, stressors, and linkages with assessment endpoints. The next step focuses on identifying risk hypotheses or testable linkages between sources. The Contractor shall conduct a review of relevant scientific literature and existing data collected in the Chesapeake Bay and its watershed to help inform development of these linkages. Identification of data and information sources may be done in consultation with the PPAT. Uncertainties, data gaps, and confounding factors may also be identified. Once the information is compiled, the contractor shall be required to develop a second iteration of the preliminary ERA conceptual model and present it to the PPAT for feedback.

**SubTask 4.2 Deliverables**

Task	SubTask	Deliverable	Due
4	4.2	A second draft of the preliminary ERA conceptual model reviewed by the PPAT and STAC which includes information on linkages between sources, stressors, and assessment endpoints. This draft shall use the updated uniform size classification from Task 3. This draft shall be submitted to TOCOR.	Due 6 months after task order award to TOCOR.

**SubTask 4.3: Risk Characterization: What are the risks and effects?**

**SubTask 4.3.1 Final Preliminary Conceptual ERA**

The final step of the ERA is the risk characterization which strives to integrate exposure and effects. The risk is articulated as effect thresholds such as lethal concentration to kill 50% of a population (LC50), species sensitivity distributions, and minimum levels for sustained population survival and reproduction. The risk analyses phase of the ERA informs this step. Uncertainties, data gaps, and confounding factors may also be identified. Once the information is compiled, the contractor shall be required to develop a third iteration of the preliminary ERA conceptual model and present it to the PPAT for feedback.

**SubTask 4.3.2 Report on Methods used for Preliminary Conceptual ERA**

The Contractor shall submit a report that describes the process for compiling the preliminary ERA conceptual model. The report must include the information and data used to inform the model, as well as identification of information gaps that could be addressed through future study.

### **SubTask 4.3 Deliverables**

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
4	4.3.1	A final draft of the preliminary ERA conceptual model approved by PPAT and STAC which includes information on linkages between sources, stressors, and assessment endpoints submitted to TOCOR for review and approval.	Due 9 months after task order award to TOCOR.
4	4.3.2	A final report submitted to TOCOR for approval describing the process for compiling the preliminary ERA conceptual model. The report must include the information and data used to inform the model, as well as identification of information gaps that could be addressed through future study.	Due 9 months after task order award to TOCOR.

### **Task 5: Develop a Science Strategy to address Microplastics** (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6, and 3., and 4.)

This task will help guide future research on the impacts of microplastic pollution in the Potomac River, Chesapeake Bay, and contributing watersheds. Using the information gaps identified in the development of the preliminary ERA conceptual model (SubTask 4.3.3), the Contractor shall draft a document that outlines the necessary research that is needed to address these gaps. The Contractor shall consult with the PPAT on the finalization of this document. The Contractor is encouraged to refer to the San Francisco Estuary Institute *Microplastic Monitoring and Science Strategy for San Francisco Bay at* [https://www.sfei.org/sites/default/files/biblio\\_files/SFEI%20Microplastics\\_021517%20highres.pdf](https://www.sfei.org/sites/default/files/biblio_files/SFEI%20Microplastics_021517%20highres.pdf)

### ***Task 5 Deliverables***

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
5	NA	A final strategy reviewed and approved by the PPAT and STAC and submitted to TOCOR for approval which outlines the necessary research that is needed to address these information gaps identified during the development of the preliminary ERA conceptual model (Task 4.3.3).	Due 11 months after task order award.

**Task 6. Additional research to fill in gaps identified in Science Strategy under Option Period 1** (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6 and 3., 4.)

***SubTask 6.1 Communication with Stakeholders and Prioritize Information Gaps***

Additional research is needed to address information gaps identified in the science strategy (Task 5).

The Contractor will work with the PPAT to identify priority information gaps to address these research needs.

***SubTask 6.2 Research Information Gaps Identified in Science Strategy***

The Contractor will conduct research to address at least one of the information gaps identified in the science strategy (Task 5).

***SubTask 6.3 Updated Preliminary Conceptual ERA***

The Contractor shall update the ERA conceptual model based on updated information. The Contractor shall present its findings and new iterations of the model to the PPAT.

**Task 6 Deliverables**

<b>Task</b>	<b>SubTask</b>	<b>Deliverable</b>	<b>Due</b>
6	6.1	Report out on research conducted during the option period in the form of one or more presentations to the TOCOR and PPAT.	Due 6 months from Option Period start date to TOCOR.
6	6.2	Report out on research conducted during the option period in the form of one or more presentations to the TOCOR and PPAT.	Due 6 months from Option Period start date to TOCOR.
6	6.3	New iteration of the ERA conceptual model reviewed and approved by the PPAT that includes information collected during from research conducted during the option period submitted to TOCOR for approval.	Due 10 months from Option Period start date to TOCOR.

**F. TECHINICAL EXPERTISE REQUIRED BY KEY CONTRACTOR STAFF**

Key staff should demonstrate experience developing ERAs for emerging contaminants of concern. The key technical individual(s) must have experience with development of physical, chemical and aquatic life exposure-response relationships in freshwater, estuarine, and marine environments. This requires biostatistics (particularly R and writing and reviewing code), water chemistry as it relates to non-conventional pollutants and effects on aquatic life, and the relevant body of literature. The individual(s) working under this Task Order need to have the knowledge, skills and experience with ecological risk assessments and models as well as microplastic pollution. These individuals should also demonstrate the ability to collaborate with multiple partners on retrieving data and formulating an ERA based on that research. The ability to facilitate discussions among multiple partners is also highly desired.

#### **G. ANTICIPATED TRAVEL**

All travel under this Task Order shall be in compliance with task order requirements and only according to specific written documentation from the TOCOR. The vast majority of interactions shall be conducted through conference calls. When in-person meetings are required, the length of the meetings and the amount of contract personnel needed for each trip shall be provided to the contractor through written documentation from the TOCOR. The contractor shall plan for not more than six overnight trips (covering not more than two days and one night each, to Annapolis, Maryland for not more than two project staff) over the period of performance.

#### **H. ACCEPTANCE CRITERIA**

The Contractor shall prepare high quality products and that are reproducible and transparent. Deliverables shall be edited for grammar, spelling, and logic flow. The technical information shall be reasonably complete and presented in a logical, readable manner. Figures submitted shall be of high quality similar to presentations developed for national scientific forums and should be formatted as jpeg or TIFF files. Text deliverables shall be provided in Microsoft Word 2016 or compatible format. Any and all spreadsheets, raw data, coding and modeling work (including all model runs with essential data to replicate model runs) shall be in electronic Microsoft Excel© or XML formats.



## I. DELIVERABLES AND SCHEDULE

### Base Period

Task	SubTask	Communication Deliverables	Due
1	1.1	Brief, written progress reports as email to the TOCOR	Due monthly or upon request by the TOCOR for the duration of this Task Order.
1	1.2	Project meetings and other communications, such as conference calls	Due monthly or upon request by the TOCOR for the duration of this Task Order.
1	1.3	Brief, written reports as emails to TOCOR detailing problems, delays or questions	Due immediately and as needed to TOCOR.
1	1.4	Brief, written reports as emails to TOCOR detailing problems, delays or questions working with stakeholders	Due immediately and as needed to TOCOR.
1	1.5	Meeting Notes and summaries detailing topics discussed and discussion among parties	Due within 5 business days of a meeting to TOCOR.
Task	SubTask	QA Deliverable	Due
2	2.1	A Draft QAPP for EPA 45-day Review	Due within 4 weeks after receipt of EPA's final review.
2	2.2	A Final QAPP including EPA comments	Due within 2 weeks of EPA QA Memo
2	2.3	Documentation of all analyses that indicate how types, quantity, and quality of data have been quality assured and maintained.	Due within 11 months after task order award to TOCOR.
Task	SubTask	Size Classification Deliverable	Due
3	NA	A Uniform Size Classification and Concentration Unit Document reviewed and approved by the PPAT and STAC	Due within 6 months of task order award to TOCOR.

<b>Task</b>	<b>SubTask</b>	<b>ERA Deliverables</b>	<b>Due</b>
4	4.1.1	A report out via email to the TOCOR detailing the process to plan and engage PPAT and other stakeholders for input.	Due 2 weeks after task order award to TOCOR.
4	4.1.2	A draft preliminary ERA Conceptual Model illustrating sources, pathways, and endpoints reviewed by the PPAT and submitted to TOCOR	Due 3 months after task order award to TOCOR.
4	4.2	A second draft of the preliminary ERA conceptual model reviewed by the PPAT and STAC which includes information on linkages between sources, stressors, and assessment endpoints. This draft shall use the updated uniform size classification from Task 3. This draft shall be submitted to TOCOR.	Due 6 months after task order award to TOCOR.
4	4.3.1	A final draft of the preliminary ERA conceptual model approved by PPAT and STAC which includes information on linkages between sources, stressors, and assessment endpoints submitted to TOCOR for review and approval.	Due 9 months after task order award to TOCOR.
4	4.3.2	A final report submitted to TOCOR for approval describing the process for compiling the preliminary ERA conceptual model. The report must include the information and data used to inform the model, as well as identification of information gaps that could be addressed through future study.	Due 9 months after task order award to TOCOR.
5	NA	A final strategy reviewed and approved by the PPAT and STAC and submitted to TOCOR for approval which outlines the necessary research that is needed to address these information gaps identified during the development of the preliminary ERA conceptual model (Task 4.3.3).	Due 11 months after task order award to TOCOR.

## Option Period

Task	SubTask	Option Period Deliverables	Due
6	6.1	Report out on research conducted during the option period in the form of one or more presentations to the TOCOR and PPAT.	Due 6 months from Option Period Start to TOCOR
6	6.2	Report out on research conducted during the option period in the form of one or more presentations to the TOCOR and PPAT.	Due 6 months from Option Period Start to TOCOR.
6	6.3	New iteration of the ERA conceptual model reviewed and approved by the PPAT that includes information collected during from research conducted during the option period submitted to TOCOR for approval.	Due 10 months from Option Period Start to TOCOR.

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
						1      2	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
P00001		See Block 16C					
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
CAD							
US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(X)			
TETRA TECH, INC. Attn: John Hochheimer 10306 EATON PL STE 340 FAIRFAX VA 22030							
				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				X			
				10A. MODIFICATION OF CONTRACT/ORDER NO.			
				EP-C-17-031			
				68HERC20F0213			
				10B. DATED (SEE ITEM 13)			
				04/30/2020			
CODE 198549560		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
See Schedule							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
X	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
	D. OTHER (Specify type of modification and authority)						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 198549560							
TOCOR: Patricia Gleason							
The purpose of this modification is to incorporate the attached EPA blanket administrative modification signed by Raoul Scott on July 30, 2020. All other terms and conditions remain unchanged.							
Payment:							
Period of Performance: 05/01/2020 to 04/29/2022							
Delivery-Invoice Payment Schedule shall not exceed a frequency greater than once a month and 90% of the task order price. Acceptance for invoicing is based on deliverable approval by the TOCOR. For efficient processing IAW FAR clause 52.232-32, performance based payment invoicing amounts will not be submitted until the TOCOR provides deliverable approval. The Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Andrea Dehne			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
				 (Signature of Contracting Officer)		10/19/2020 ELECTRONIC SIGNATURE	
(Signature of person authorized to sign)							

NAME OF OFFEROR OR CONTRACTOR  
TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	TOCOR will notify Tetra Tech within 14 days of submission of a deliverable of EPAs intention to approve or disapprove. TOCOR: Patricia Gleason/ (215) 814-5740/gleason.patricia@epa.gov ALTOCOR: Lydia Bailey/ (215) 814-5339/bailey.lydia@epa.gov				

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
2. AMENDMENT/MODIFICATION NUMBER		3. EFFECTIVE DATE 08/13/2020		4. REQUISITION/PURCHASE REQUISITION NUMBER		5. PROJECT NUMBER (If applicable)	
6. ISSUED BY Raoul D. Scott, Director OMS/ARM/OAS/Policy, Training and Oversight Division US Environmental Protection Agency, Mail Code 3802R 1200 Pennsylvania Avenue, NW Washington, DC 20004		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (Number, street, county, State and ZIP Code)  To All EPA Contractors				<input checked="" type="checkbox"/> (X)		9A. AMENDMENT OF SOLICITATION NUMBER	
				<input type="checkbox"/>		9B. DATED (SEE ITEM 11)	
				<input checked="" type="checkbox"/> (X)		10A. MODIFICATION OF CONTRACT/ORDER NUMBER To all EPA Contracts and Orders	
				<input type="checkbox"/>		10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE					

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:  
 (a) By completing items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;  
 or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.  
IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
<input type="checkbox"/>	
<input checked="" type="checkbox"/> (X)	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

This contract/order is being modified in accordance with the applicability instructions in interim FAR Case 2019-009, and FAR 4.2105, requiring contracting officers to include FAR clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

See attached for the full text version of FAR 52.204-25. Contractor Acknowledgment of receipt required.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Raoul D. Scott, Director Policy, Training and Oversight Division	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  RAOUL SCOTT Digitally signed by RAOUL SCOTT Date: 2020.07.30 11:40:17 -04'00'	16C. DATE SIGNED
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

Previous edition unusable

## **52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.**

As prescribed in 4.2105(b) and in the applicability instructions in interim FAR Case 2019-009, insert the following clause:

### **Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020)**

(a) Definitions. As used in this clause—

*Backhaul* means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

*Covered foreign country* means The People's Republic of China.

*Covered telecommunications equipment or services* means—

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

*Critical technology* means—

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

*Interconnection arrangements* means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

*Reasonable inquiry* means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

*Roaming* means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

*Substantial or essential component* means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition. (1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.



(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts*. The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)